DOCUMENT RESUME

ED 161 339 HE 010 633

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TITLE Towards Measuring the Success of Occupational Education. AIR Forum Paper 1978.
PUB DATE [May 78]
NOTE 14p.; Paper presented at the annual Association for Institutional Research Forum (18th, Houston, Texas, May 21-25, 1978)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Cost Effectiveness; Educational Accountability; *Educational Benefits; Educational Objectives; Employment Patterns; *Employment Potential; Employment Qualifications; Followup Studies; Higher Education; Income; *Institutional Research; *Measurement Techniques; Socioeconomic Status; Success Factors; *Vocational Education
IDENTIFIERS *Education and Work

ABSTRACT

An important objective of many educational institutions is to prepare students for work. School officials need a "good" measure to know how effectively and efficiently their programs are meeting this objective. Three commonly used measures of measuring a school's performance are placement rates, the proportion of graduates in education-related jobs, and the internal rate of return. None of these three meet the criteria for a "good measure set out in this paper. Placement rates are too limited to be of any use. There are operational problems with the work-relatedness test but most importantly there is no consideration of costs. Rate of return is the best measure in concept but there are severe operational problems. A fourth measure, sometimes called the income-ratio, is suggested as an alternative. The ratio incorporates many of the good features of the usual measures and appears to provide the needed information and to meet the criteria of a "good" measure. (Author)

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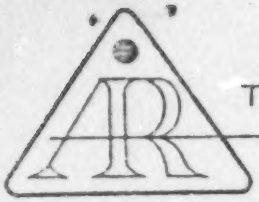

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Towards Measuring The Success of Occupational Education

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Abstract

An important objective of many educational institutions is to prepare students for work. School officials need a 'good' measure to know how effectively and efficiently their programs are meeting this objective. Three commonly used measures of measuring a school's performance are placement rates, the proportion of graduates in education-related jobs, and the internal rate of return. None of these three meet the criteria for a 'good' measure set out in this article. Placement rates are too limited to be of any use. There are operational problems with the work-relatedness test but most importantly there is no consideration of costs. Rate of return is the best measure in concept but there are severe operational problems. A fourth measure, sometimes called the income-cost ratio, is suggested as an alternative. The ratio incorporates many of the good features of the usual measures and appears to provide the needed information and to meet the criteria of a 'good' measure.

Towards Measuring the Success of Occupational Education

Increasingly educational institutions are being asked to justify their programs and spending. Also the same institutions are often strapped for funds. In both situations it is important that administrators know how effectively and efficiently their programs are meeting objectives. For schools whose objectives are vocational--and probably others as well--administrators need a 'good' measure of how well the schools are preparing students for work. By a 'good' measure is meant one that: (a) identifies what an educational program is accomplishing in terms of its graduates' job success; (b) discriminates between the effect or performance that can be attributed to the program being examined as compared to what would have happened had there been no educational program; (c) is economic, that is, indicates how efficiently the results were obtained; and (d) is operational, is easily understood and administered by school officials on an ongoing basis.

This article examines three measures of labor market success: (1) placement rates; (2) the proportion of graduates working in education related jobs; and (3) the internal rate of return. Each one falls short of meeting all four criteria of a 'good measure set out above. In the final section a fourth measure, an income-cost ratio, is proposed, a technique that appears to provide the needed information and still meets the four criteria.

The subject of this article is a limited form of evaluative research about schools. None of the measures--even a 'good' measure--would constitute a complete evaluation of an educational institution. On one hand there are many worthwhile objectives of education, only some of which have anything to do with labor market activity. On the other hand only the effect and efficiency of an institution are being considered and other components of a complete evaluation (Suchman, 1967) are not covered. Although limited in scope, job related measures of educational effectiveness should be important to many schools, especially those designed to teach occupational skills and prepare persons for the labor market.

Placement Rates

One technique for judging the effectiveness of a school is to ascertain how many of its graduates get jobs; a school is successful if a large proportion of its graduates are working after leaving school. The technique is certainly operational. The data can be regularly collected and results are easily understood. However placement rates fail to meet the other criteria. First, surely the objective of occupational oriented education is more than trying to ensure that graduates get a job. Rather it is the quality of the job that counts. Second, in most circumstances placement rates will fail to identify the effect of the educational program as opposed to what would happened anyway. In any economy with a reasonably high level of aggregate demand most persons will eventually be absorbed into the economy. If one uses

placement rates to judge the performance of a school there is very likely to be no discernable effect even for a school that does an excellent (or poor) job in preparing its students for the world of work.

Work-Relatedness Test

Under a work relatedness test a school is judged to be doing a good job if most of its graduates are "using" their education; the school is doing a poor job if graduates are working in occupations that do not use or are not related to their education. This approach has a great deal of intuitive appeal and, at first glance, the measure would seem to add an important dimension to the raw placement rates described above. The tests of performance are more sophisticated: (1) if the individual is not using his education in his job the implication is that he probably could have had the job without the education; and (2) occupationally oriented education should add to the stock of human capital in the economy and a test of whether education really produces human capital is whether that capital is being used in paid employment.

However it is questionable whether work-relatedness is operational. First, which occupations are education related? It is very difficult, if not impossible, to maintain a list of occupations appropriate to a particular education program since the list of actual occupations and the nature of occupations on that list change very rapidly, perhaps more rapidly than anyone can keep track of. Second, education supposedly transmits a very substantial sector of knowledge, work skills, attitudes, ability, background for independently solving problems, etc.

How many of these or what part of these "characteristics" does a student have to be using before he or she is considered to be in an education related job? As a result, answers to the question of how many graduates are in education related jobs depend to a large extent on how the questions are asked and who tries to answer them (Clark, 1977).

Probably of even more importance the work-relatedness test is not economic since it contains no notion of cost. It is solely a benefit measure without any consideration of the resource cost of those benefits. Just because graduates are in education related jobs is no test that they could not have been in those jobs anyway, perhaps through some alternative combination of work, training and education and with less (or more) cost involved. Or, to look at the issue from another perspective, just because graduates are in jobs that use their education does not necessarily mean that those education resources are being used in the most efficient manner. There may be alternative uses that would provide even greater benefits from those resources. Education is not free, indeed it is often very expensive and a measure of educational effectiveness that does not include cost in its calculations is not a good measure.

Rate of Return

The general approach of the internal rate of return is to treat education as an investment and to evaluate this investment by comparing benefits with costs. (Based on the work of Becker, 1964, Blaug, 1965, and many others.) The benefits are the incremental lifetime income after

graduation associated with the additional education that one is evaluating. The costs are the extra costs of that education including foregone earnings as well as direct costs. The internal rate of return is that discount rate that equates the present value of the benefits to the present value of the costs. The theoretical basis is that education enhances productivity and the rise in productivity is measured by the change in income associated with that education.

By using a more general measure of effect (incremental earnings) and explicitly introducing costs, the technique answers the problems raised above in the discussion about the work-relatedness test. If one accepts the theoretical argument about the relation of income to productivity then the technique in concept meets the first three criteria set out in the introduction to this paper.

It is the fourth criterion, the need to be operational, where rate of return is lacking. There are significant data problems, most of which are on the benefit side. The effect of the education is measured by comparing lifetime incomes with and without the education. However, one cannot wait a lifetime for the data to make rate of return calculations. Therefore one uses cross sectional data to simulate lifetime earnings. One problem is that older age groups may have had a very difficult quality of education and been subjected to very different criteria for choosing who shall go on to further education. A second problem is that relative wage rates for persons who are already in the labor force may be slow to change and therefore only entry jobs measure current market conditions. The result of these issues is that internal rate of return

may be measuring the effect of schools that no longer exist in labor markets no longer relevant. A very practical result is that rate of return may be very slow to reflect changes in market conditions facing new graduates.

Another data problem is that not all differences in earnings associated with education can be attributed to education but may be a result of differences in ability, family background, additional training, or other factors which could have had their influence before, after, or in conjunction with the education being studied. Attempts can be made to control for these other factors so as to isolate the independent effect of the education being considered. However one is dealing with microdata where differences among individuals within educational groups are larger than differences between groups and where education may be important but most of the reasons remain unspecified. This situation has made some persons very skeptical of rate of return results. (e.g. Jencks, 1972) A fourth data problem is how information on earnings is to be collected. Census materials can be used to measure the rate of return for broad educational categories but not for individual schools or programs. For the latter one must make surveys of graduates which not only are costly but also are difficult to administer since graduates who have been out of school for some time are hard to find. In short rate of return is not fully operational and for most purposes probably does not meet the fourth criterion.

A Summary with a proposal for a new technique

An important objective of many educational institutions is to prepare students for work. This paper has described and criticized three commonly used methods of evaluating a school in terms of this objective. None of these satisfies the four criteria set out in the introduction. The placement rate is probably too limited in scope to be of any use. The work-relatedness test has an imperfect measure of market performance and leaves out any consideration of costs. The rate of return relies on a very uncertain data base. But each of the latter two measures has some advantages, and, if one is aware of the possible shortcomings in the conceptual framework and the data, each measure probably has something to add to our knowledge about the labor market effectiveness of an educational institution. The rate of return is easy to criticize but the technique does explicitly include costs in its calculations of efficiency and one cannot honestly measure efficiency by measuring benefits alone. Work-relatedness cannot stand by itself but it can help in understanding the relationships between school and the labor market. One way to meet the information needs of school administrators is to treat the two measures as complementary, not competing forms of evaluating educational effectiveness; that is, do both.

A second approach is to develop a different measure that keeps the good features while sidestepping the bad. One possibility is what has been called an income-cost ratio. The ratio is similar to an internal rate of return but, by having somewhat more modest objectives,

avoids many of the data problems of its bigger cousin. The numerator in the ratio is current--not lifetime--incremental income (the additional earnings during the first or second year after graduation above and beyond what individuals of the same age and background but without the education being considered are earning); the denominator is incremental costs. The technique has appeared once in the literature (Clark, 1972), where it was used to rank five different types of educational institutions in Singapore as to which were the better investments as far as employment was concerned. If the technique has been used over time, changes in the ratios would have indicated whether the job market success of the various schools was changing and in what direction.

From a technical point of view the technique compares single points on the age-earnings profiles of those with various amount and types of education while taking into account the varying costs. Among the advantages of the income-cost ratio is that it uses only current income as the benefits of the education being studied, a measure that takes into account current labor market demand and supply conditions. There is no attempt to estimate lifetime earnings so the technique avoids the numerous assumptions needed for that exercise. There are costs of using a simpler measure than rate of return. Specifically the results can only be used to compare schools or to compare the performance of one school over time; the results cannot be used to judge whether a school is a good investment or how a school compares with alternative non-school ways of using resources. Nevertheless, routinely used, the measure should be an important way of checking how well

occupationally oriented schools or programs are meeting their labor market objectives.

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